

The Blog - *Ruediger Schoenbohm* (TEXT #1)

How measles can change a life *(edited for length)*



In the early 1990s we lived in Berlin, Germany. We were young and full of plans for the future. My wife Anke was working as a nurse and I had just started my professional career as an engineer. We became a little family when Julian, our older son, was born in the spring of 1992. We built our “nest”, had great friends and neighbors, and simply enjoyed life as a young family.

As most parents probably are, we were very grateful and thankful. Two years later, during the summer of 1994, our second child, Maximilian, saw the light of day and made our family happiness complete. Back then, we had not the slightest idea of how dramatically our lives would change some years later. Max turned out to be a blessing and a challenge at the same time: he was so full of energy and life that it was sometimes hard to keep him under control. But he was very charming, even as a baby. He won the hearts of the people around him in no time.



When he got sick in the winter of 1994/1995, we were a bit worried because of his young age. After all, he was only six months old when measles hit him badly. It had been way too early for vaccination, but not too early for infection. He spent several days with a high fever while his pediatrician feared that he would develop some sort of complications. And he did: his lungs got affected, he developed a dry cough, and sometimes he even had difficulties breathing. We were concerned, but had no clue and nobody had ever mentioned anything about potentially fatal measles complications.

After a few weeks everything was over. Max had recovered and as spring came around, the vivid, high-energy boy was back. What we did not know back then was that he would only stay with us for another 10 years.

When Max was in third grade of elementary school his performance in math suddenly dropped.

Initially we thought that it might have to do with his high energy level and his difficulty concentrating sometimes. But then he started showing some strange behaviors – only for short moments, but becoming more frequent. We did not realize that these were the first signs...

In October of 2004 the first seizure occurred. Max would stop doing anything – from one second to the other – he would sit and stare. Just for a few seconds or sometimes a minute. When the seizure was over, he could not remember anything. We learned that this kind of seizure is called ‘absence’.

The doctors told us that sometimes children would develop this kind of epilepsy when they were just about to enter puberty. So we thought that maybe it would be temporary and eventually go away. But there was a bad sign: Max’s EEG that was taken

shortly after his first seizure was entirely abnormal. There were curve patterns that did not belong there. The doctors tried to control the seizures by a special mix of anticonvulsants. And actually it did help – for a few weeks...

The seizures came back in March. Heavy, frequent and different. The doctors sent us to one of the best epilepsy centers in Germany at Kehl-Kork. They only needed a few examinations to confirm the worst suspicions: Max was diagnosed with SSPE, Subacute Sclerosing Panencephalitis, a late complication of an early age measles disease. Rare, but fatal – in any case, without exception. It was very hard for us to realize that they were talking about our bright, happy, vivid 10-year-old boy.

We were numb, desperate, did not understand that the doctors were telling us that we would lose our child – no matter what, just a matter of when.

We fought hard for a long time. We spent nights on the internet seeking for rescue, for some sort of treatment that would stop us from going down the path of the inevitable. We established contacts with medical scientists in India, Turkey and the US. We imported homeopathic medicine from India; we applied β -interferon, vitamins, fish oil, minerals – all the good stuff.

But fate sometimes is relentless: in April of 2006 our boy said good-bye forever. An unexpected thrust of brain inflammation put him into a vegetative state. Within only hours he lost everything he had learned during his young life. His last words were: “I don’t know who you are”. It’s going to haunt us for the rest of our lives....

The measles virus is extremely dangerous. Thousands of children around the world suffer from acute complications such as heart problems, deafness, eye infection, meningitis, hepatitis, bronchitis, Krupp cough, and of course the rare ones like infections of the optic nerve or SSPE.

Other severe diseases such as pox, plague, or poliomyelitis are almost eliminated on this planet, because better hygiene and protection by vaccination has successfully pushed back those infections.

So why don’t we learn? Isn’t it a shame for a developed country like Germany that measles are still an issue? When it comes to vaccination, parents are not responsible for their own children only – their decision pro or against vaccination may have a significant impact on others! There are proven cases of babies being infected by measles while sitting in a pediatrician’s waiting room. Isn’t that cynical? One of these children died a year ago, from SSPE.

Looking back and considering how life could have been is hurtful. Max did not deserve what has happened to him. It is almost unbearable to accept the fact that under different circumstances or if we had lived in another country back at that time our child would most likely still be healthy. We have lost him forever and it is breaking our hearts. Only in our memories we still see him and he makes us smile. Sometimes the thought of him is choking us. We do not know how long Max will still stay with us, but we will care for him until the end.

***Editor’s update: It is**

with sadness that we report the death of Max in February 2014*

Rubeola Vulgaris (measles) [Still Image] (TEXT #2)



Annotation

Robert Willan (1757-1812) was a physician who practiced in London. Like Sydenham he was fascinated by the relation of weather to epidemics and kept strict records on when they occurred over several years. He was particularly interested in the diseases of children and carefully observed rashes and pustules as they developed in stages on the skin. The first volume of his book, *On Cutaneous Diseases*, was published between 1798-1808 and widely admired by the medical world. Historians generally agree that it was this book that launched the modern specialty of dermatology. The volume is notable for its' beautiful and graphic colored plates. Willan closely supervised the creation of these. In 1812 as he was preparing a second volume for publication, Willan sadly died from tuberculosis. Plate 20

shows a young child's face and arm covered in the rash characteristic of measles. It was often a severe and disfiguring disease in early modern England and could result in death as the infection spread to the tissue and bone, resulting in gangrene.

Source

Willan, Robert. *On Cutaneous Diseases*. N.p., 1808. Wellcome Collection, "Plate 20: On Cutaneous Diseases," *The Wellcome Library*, http://library.wellcome.ac.uk/doc_WTD015575.html (accessed October 13, 2008).

<http://www.cdc.gov/measles/cases-outbreaks.html>

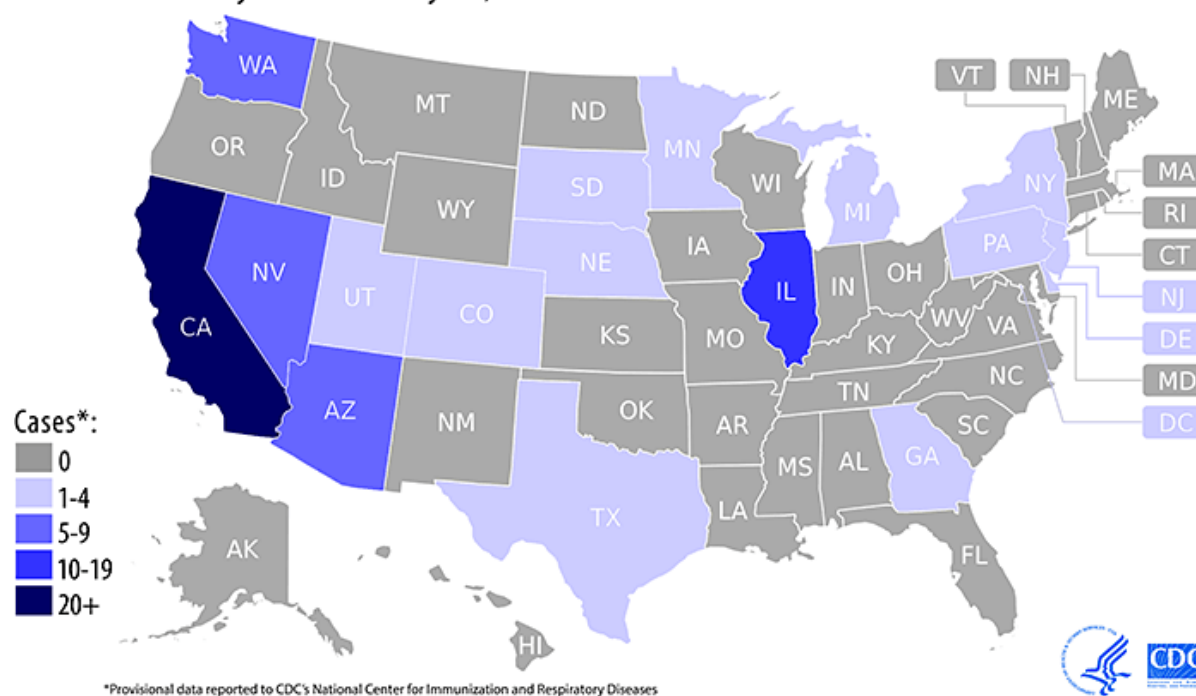
Measles Cases and Outbreaks (TEXT #3)

Measles Cases

From January 1 to February 20, 2015, 154 people from 17 states and Washington DC were reported to have measles [AZ (7), CA (104), CO (1), DC (2), DE (1), GA (1), IL (14), MI (1), MN (1), NE (2), NJ (1), NY (2), NV (6), PA (1), SD (2) TX (1), UT (2), WA (5)] †. Most of these cases [118 cases (77%)] are part of a large, ongoing [multi-state outbreak linked to an amusement park in California](http://www.cdc.gov/measles/multi-state-outbreak.html)(<http://www.cdc.gov/measles/multi-state-outbreak.html>).

2015 Measles Cases in the U.S.

January 1 to February 20, 2015



† CDC will update these data weekly on Mondays.

The United States experienced a record number of measles cases during 2014, with 644 cases from 27 states reported to CDC's National Center for Immunization and Respiratory Diseases (NCIRD). This is the greatest number of cases since [measles elimination](http://www.cdc.gov/measles/about/faqs.html#measles-elimination)(<http://www.cdc.gov/measles/about/faqs.html#measles-elimination>) was documented in the U.S. in 2000.

Measles Cases and Outbreaks

January 1 to February 20, 2015*

154

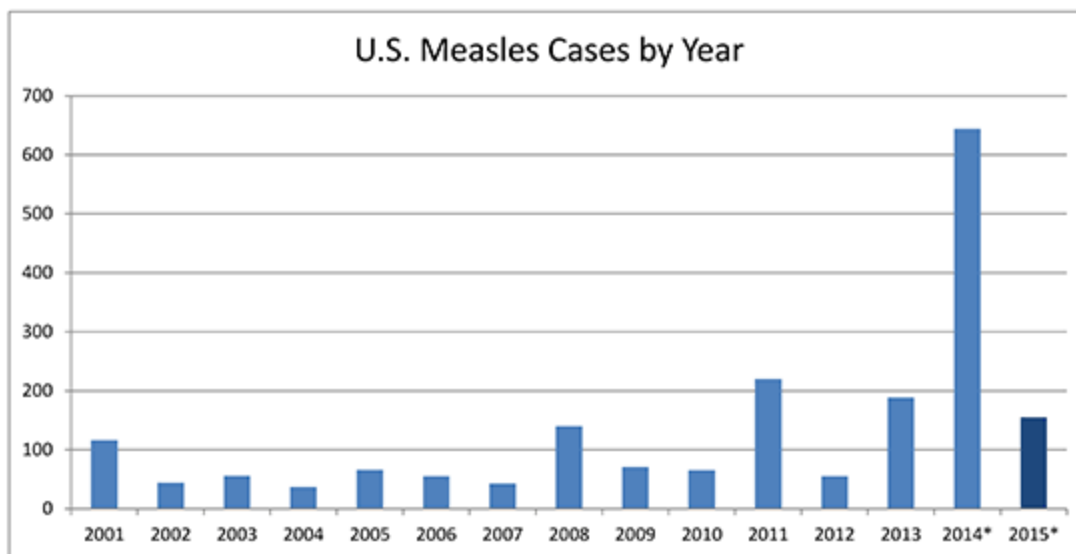
Cases

reported in 17 states and Washington DC: Arizona, California, Colorado, Delaware, Georgia, Illinois, Michigan, Minnesota, Nebraska, New Jersey, New York, Nevada, Pennsylvania, South Dakota, Texas, Utah, Washington

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Outbreaks

representing 90% of reported cases this year



*Provisional data reported to CDC's National Center for Immunization and Respiratory Diseases



- The majority of people who got measles were unvaccinated.
- Measles is still common in many parts of the world including some countries in Europe, Asia, the Pacific, and Africa.

- Travelers with measles continue to bring the disease into the U.S.
- Measles can spread when it reaches a community in the U.S. where groups of people are unvaccinated.

MMWR: 2015 Outbreaks

Measles

What You Need to Know



What are Measles?

Measles is a rash illness caused by the Rubeola virus.

Who can get Measles?

Anyone who has not had a confirmed case of Measles (mostly people born after 1956) and who have not been given a Measles vaccine.

What are the symptoms of Measles?

- Hard dry cough
- Sneezing or runny nose
- Watery or red eyes
- Fever which rises when rash appears (101° F or higher)
- Rash that is red, raised, blotchy; starts on face, spreads to trunk, arms and legs
- Tiny white spots on the inner cheeks, gums, and roof of the mouth surrounded by redness

How long after exposure do symptoms begin?

Cough, runny nose, watery eyes, and fever usually begin 10-12 days after exposure. The rash usually appears 4 days later.

How are Measles spread?

Measles are easily spread by droplets from the nose, throat and mouth through sneezing, coughing and speaking. It occurs most commonly in late winter and early spring.

How long is a person contagious?

A person can spread measles up to four days before until four days after the rash appears. Measles are highly contagious.

Are there complications of Measles?

Otitis Media (ear infection) or pneumonia could occur as a result of measles. Encephalitis (inflammation of the brain) is an uncommon, but serious complication of Measles. During pregnancy, Measles may cause the loss of the unborn baby. Death due to Measles is rare in the U.S.

Is there a treatment for Measles?

Bed rest at home until at least 4 days after the appearance of the rash is necessary to not infect others. There is no specific treatment for Measles.

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How can Measles be prevented?

- Measles can be prevented by vaccination.
- Measles vaccine is a 2 dose series for children.
- All healthy children should be vaccinated at 12 - 15 months with the combination shot for Measles, Mumps, Rubella (MMR).
- A 2nd MMR vaccine is usually given at 4 - 6 years of age. It can be given at any time as long as it is at least 4 weeks after the 1st dose.
- Some infants under 12 months should get a dose of MMR if they are traveling out of the country (this dose will not count toward their routine series).
- Adults born in 1957 or later should receive at least 1 dose of MMR vaccine unless they have other acceptable evidence of immunity. A second dose of MMR vaccine should be given to adults who are students in colleges/universities, work in health care, or plan to travel internationally. Check with your provider to see if you need to be vaccinated.
- Pregnant women should not get vaccinated as this is a live viral vaccine. All women of childbearing age should keep out of contact with those who have Measles.
- Be sure to keep a record of all immunizations. Write down when the shots were given.

What if Measles occurs at school or a day care center?

All cases must be reported to your local health department within 24 hours. People born after 1956 who cannot prove that they either have had:

- 1) Laboratory evidence of immunity to Measles
- Or
- 2) Measles vaccine after 12 months of age and a 2nd dose at least 4 weeks later, should get a measles vaccine. Otherwise, they will be excluded from school/day care until at least 21 days after the beginning of the last Measles case.

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Subacute Sclerosing Panencephalitis, a Measles Complication, in an Internationally Adopted Child

Text #5

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A healthy 13-year-old boy who had spent the first 4.5 years of his life in an orphanage in Thailand before adoption by an American couple became ill with subacute sclerosing panencephalitis and died several months later. The boy had most likely contracted wild-type measles in Thailand. Measles complications are a risk in international adoptions.

Undiagnosed infections in internationally adopted children have been receiving increasing attention throughout the past decade. HIV, hepatitis viruses, *Treponema pallidum*, *Mycobacterium tuberculosis*, and intestinal parasites frequently complicate such adoptions (1,2). Subacute sclerosing panencephalitis (SSPE), a postinfectious neurologic complication of measles, can also occur. We describe a fatal case of SSPE in an internationally adopted child 9 years after he arrived in the United States.

Case Report

A 13-year-old boy of Thai descent was referred to the pediatric neurology clinic at the University of Iowa Hospital with cognitive difficulties and a progressive movement disorder. The boy was born in 1984 and spent the first 4.5 years of his life in an orphanage in Thailand before being adopted by an American couple from Dubuque, Iowa. His adoptive parents were told by the adoption agency that the boy's medical history was unremarkable. No history of measles was reported. At adoption, the child appeared healthy and well nourished, and at no time afterwards did he have an illness suggestive of measles. Shortly after arrival, he displayed a short attention span and easy distractibility, for which he was eventually diagnosed with attention deficit hyperactivity disorder. He was

treated with low-dose methylphenidate for several years with good results.

The child remained healthy throughout childhood until the age of 13 years 2 months, when his mother noted personality changes of irritability and worsened attention. Several months later, he developed intermittent, random, low-amplitude, lightning-like jerking movements of the extremities. The abnormal movements (thought to be tics) improved moderately, but transiently, after the methylphenidate was discontinued.

During the next several months, the boy became increasingly withdrawn and emotionally labile. He was treated for depression, but fluoxetine induced a marked worsening of the movement disorder and was discontinued. He was next treated with valproic acid, again with worsening in the movement disorder and no improvement in the psychiatric symptoms. Although the boy's academic performance had previously been average, he began to fail academically. He lost previous mathematics and language skills, and his teachers and parents noted progressive memory deficits. The movement disorder evolved from random myoclonic jerks of all four extremities to drop attacks many times a day, during which, while walking or standing, he would suddenly fall to the floor.

On examination at 13 years 9 months, the boy appeared healthy. He was alert and cooperative, but produced little spontaneous or prompted speech. He followed simple verbal commands, but had difficulty with more complex ones and appeared confused by simple written commands;

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Dispatches

his adoptive mother indicated that at earlier times, he could have easily understood and followed such commands. Cranial nerve examination was notable for saccadic pursuit movements of gaze, hypometric saccades, and mild facial diplegia. Motor examination was notable for cogwheeling in the upper extremities bilaterally, especially on pronation-supination. The gait was remarkable for diminished bilateral arm swing. The posture and stance were remarkable for intermittent shocklike dipping of the head and shoulders with no apparent change in level of consciousness or postictal state.

Results of magnetic resonance imaging (MRI) (Figure 1) were focally abnormal with a

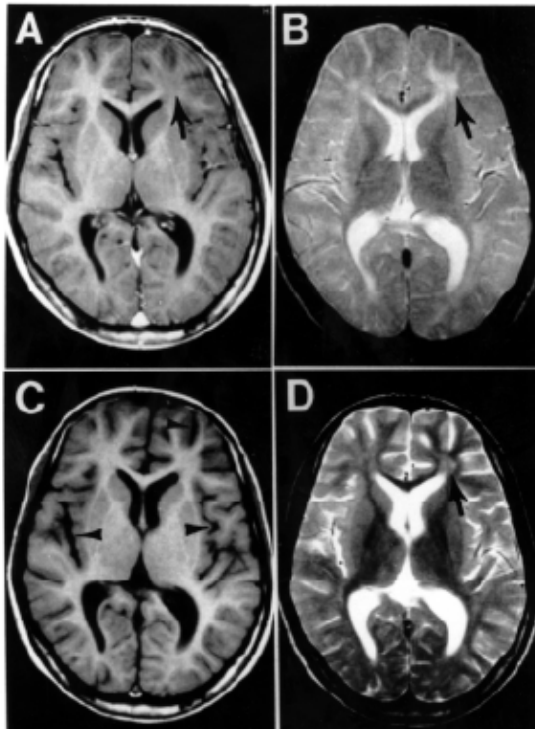


Figure 1. MRI scans of brain at time of presentation in the neurology clinic (A and B) and 3 months later (C and D). Panels A and C are T1-weighted images; B and D are T2-weighted images. The initial MRI scan (A and B) reveals a focal abnormality in the subcortical white matter of the left frontal lobe, consisting of a hypointense signal on the T1-weighted image (arrow in A) and a hyperintense signal on the T2-weighted image (arrow in B). In the follow-up scan, the focal abnormality in the left frontal lobe is less obvious than previously (arrow in D), but advanced and diffuse cortical atrophy is present, signified by the ventriculomegaly and markedly enlarged sulci (arrowheads in C).

single patch of increased T2 signal intensity and decreased T1 signal intensity in the subcortical white matter of the left frontal lobe. This focal lesion did not enhance with gadolinium. Results of an electroencephalogram (EEG) revealed high-amplitude bursts of periodic slow-wave complexes every 4–10 seconds, often accompanied by observable axial myoclonic spasms. The periodic slow-wave complexes arose from background activity that was essentially normal, except for some mild bifrontal dominant slowing (Figure 2). Cerebrospinal fluid (CSF) cytology, glucose, and total protein levels (15 mg/dL) were normal, but CSF immunoglobulin G (IgG) was elevated at 16.3 mg/dL (normal, 0.5–5.9 mg/dL). Measurement of specific antibodies by enzyme-linked immunosorbent assay revealed that rubeola (measles) IgG antibodies were markedly elevated in the CSF at 1:160 (normal, <1:5) and in the serum at 1:5120. Rubeola IgM antibody titers were undetectable in both CSF and serum. Both the EEG and CSF patterns were pathognomonic for SSPE and that diagnosis was made.

The patient was placed on phenytoin, and the frequency of the drop attacks abated. Three months later, his neurologic status deteriorated rapidly, and he became obtunded. Repeat EEG again revealed high-amplitude, slow-wave complexes, but this time they arose from a diffusely and markedly slow background rhythm (Figure 2). Repeat MRI was most notable for advanced diffuse cortical atrophy that had not been present on the initial study. The focal abnormality in the subcortical white matter of the left frontal lobe was still detectable, but was less striking than initially (Figure 1). The patient died in June 1998, one week after the onset of acute deterioration. Permission for a postmortem study was denied.

Conclusions

SSPE is a neurodegenerative disease caused by persistent infection of the brain by an altered form of the measles virus. Neither the biology underlying the viral persistence nor the triggering mechanism for viral reactivation is well understood. In most cases, infected children remain symptom-free for 6–15 years after acute measles infection (3).

Several factors suggest that this patient contracted measles in Thailand. First, the most consistent risk factor for SSPE is acquiring measles before the second birthday (4); this child

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<http://wwwnc.cdc.gov/eid/article/6/4/pdfs/00-0409.pdf>

<http://www.cnn.com/2015/02/04/health/california-measles-outbreak/index.html>

California lawmakers want to repeal 'personal beliefs' exemption (TEXT #6)

By Steve Almasy, CNN

Updated 10:57 PM ET, Wed February 4, 2015



Surgeon general: Vaccine exemptions too permissive

(CNN)Two state senators in California are proposing legislation that would eliminate the "personal beliefs" exemption for parents who don't want their children to be vaccinated.

Dr. Richard Pan and Ben Allen's announcement came on the day the state of California announced the number of measles cases had grown to 99. Many of those cases are tied to an outbreak at Disneyland in mid-December.

The comparatively large number of cases in California this year and in the United States the past year have sparked debate over whether unvaccinated children should be allowed in public school.

California allows exemptions from vaccinations for medical reasons and "personal beliefs," and parents have been using them.

"As a pediatrician I have personally witnessed children suffering lifelong injury or death from vaccine-preventable infection," said Pan, who also wrote the California law that requires people who want to file a personal exemption to consult a doctor.

He said the proposed bill would focus on vaccinations required to attend school.

"We're not reaching sufficient immunization rates and we want to reach the rates necessary to protect the public from those diseases," he told reporters in Sacramento.

[CNN affiliate KTLA](#) reported several members of the California State Assembly will be co-authors of the bill.